

## CLAIMS

1. A switching voltage regulator adapted for providing a regulated voltage at an output terminal, comprising:

A MOS transistor having a non-drivable terminal coupled with said output terminal ; and

a control circuit receiving a signal that is representative of the current signal flowing in said MOS transistor, said control circuit having a compensation device (9) adapted for cancelling the thermal variation of said signal that is representative of the current signal flowing in said MOS transistor.

2. The regulator according to claim 1 wherein said compensation device comprises an element having a negative temperature coefficient.

3. The regulator according to claim 2 wherein said compensation device comprises a first and a second resistors connected in series, said negative temperature coefficient element being arranged in parallel to said first or second resistor.

4. The regulator according to claim 3 wherein said negative temperature coefficient element is a NTC resistor.

5. The regulator according to claim 3 wherein said negative temperature coefficient element is a diode.

6. The regulator according to claim 1 wherein said MOS transistor is a MOS power transistor having a non-drivable terminal coupled with an input voltage, and in that said control circuit comprises a driving device of said MOS power transistor which is coupled with its gate terminal, a first device which is adapted for detecting the

current flowing through said MOS power transistor and which is able to provide at an output terminal said signal that is representative of the current signal flowing in said MOS transistor, a second device which is coupled with said first device and which is able to compare said signal in output from said first device with a reference signal and which is able to provide a correction signal to the driving device, said compensation device being coupled with the output terminal of the first device and with the output terminal of said voltage regulator.

7. The regulator according to claim 6 wherein said second device is an error amplifier having the input inverting terminal connected with the output terminal of the first device and with the compensation device.

8. The regulator according to claim 7 wherein said first device comprises a transconductance amplifier.

9. A power supply modular system comprising:  
two single switching regulators arranged in parallel to each other, each of said regulators being adapted for providing a regulated voltage at an output terminal, each of said regulators comprising at least one MOS transistor having a non-drivable terminal coupled with said output terminal; and  
a control circuit receiving a signal that is representative of the current signal flowing in said MOS transistor, said control circuit having a compensation device (9) adapted for cancelling the thermal variation of said signal that is representative of the current signal flowing in said MOS transistor.

10. The system according to claim 9 wherein said compensation device comprises an element having a negative temperature coefficient.

11. The system according to claim 10 wherein said compensation device comprises a first and a second resistors connected in series, said negative temperature coefficient element being arranged in parallel to said first or second resistor.

12. The system according to claim 10 wherein said negative temperature coefficient element is a NTC resistor.

13. The system according to claim 11 wherein said negative temperature coefficient element is a diode.

14. The system according to claim 9 wherein said two switching regulators have a common input voltage, each one of said regulators comprising supply means coupled with said MOS transistor connected in turn with an output terminal of said modular system, and in that said control circuit is coupled with the MOS transistor, with said supply means and with a bus which is common to all said at the least two switching regulators and which is adapted for bringing the information of the average current brought totally by said system, said control circuit comprising a first device which is adapted for detecting said current flowing between the drain and source terminals of said MOS transistor and which is able to provide at an output terminal said signal that is representative of the said current, said compensation device being coupled with said first device in order to provide in output a compensated signal, said control circuit comprising first means able to provide a signal representative of the compensated signal to said bus and second means able to provide a correction signal to said supply means in order the current signal of each regulator to make equal to said average current.

15. The system according to claim 14 wherein said first means comprises a buffer having in input said compensated signal and said second means

comprises an error amplifier having said compensated signal at the inverting terminal and a signal representative of said average current coming from said bus at the non-inverting terminal.